

Euro-Climhist and Collective Flood Memory

Two databases on climate history and disasters created by the Oeschger Centre for Climate Change Research in Bern

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Trägerschaft

u^b
UNIVERSITÄT
BERN
OESCHGER CENTRE
CLIMATE CHANGE RESEARCH

Universitätsspital
Klimaforschung
Klimawandel
Klimaforschung
Klimawandel

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Euro-Climhist

de fr it en


Euro-Climhist – Ways to Weather Hindcasting

Examples


Possible combined searches as illustrative examples:




Gletsch in the years of 1855/56 ... and in 2009.



Extreme amounts of precipitation in Geneva 1780-2011



Flooding in the Maggia valley 1760-1800



Gletsch on the Dufour Map 1854/1864 and on the National Map 2007. geodata © swisstopo

This early photograph of the Rhone Glacier close to Gletsch from about 1855/56 visualizes the far reaching climatic change over the last 150 years, which cannot be perceived otherwise. Around 1860 the Rhone Glacier filled up the upper valley completely with its huge ice mass. Today the glacier-tongue melted so far back that it cannot be seen from the valley any more. Climate means the (statistical) summary of weather events at a specific place over a long time-span that is over thirty years and more, whereas human life follows the rhythm of the weather within some days or weeks.

Daily weather conditions in Basel in May 1761

With Euro-Climhist, evidence on weather and climate is made accessible through a user-friendly database query, including daily weather observations as well as extreme events and long-term climatic development.

Content

- Euro-Climhist – Ways to Weather Hindcasting
- Collective Flood Memory
- Potentials of citizen science in climate and disaster research

Euro-Climhist

www.euroclimhist.unibe.ch

- Documentary and instrumental evidence to reconstruct historical weather and climate since the Middle Ages
- Development since the late 1970s (Christian Pfister)
- Professionalization of the database since 2010
 - Co-financed since 2010 by MeteoSwiss and Global Climate Observing Service (GCOS) Switzerland
- 2012/2015: Going Public
- National and international cooperation projects to enlarge the available datasets all over Europe
 - Currently approximately 350'000 records available
 - 13th century to present
 - Scientific contributors as well as non-academic weather observers

Euro-Climhist

www.euroclimhist.unibe.ch

- Accompanying website with introductory texts for scholars and a general public, e.g.:
 - Historical climatology and the methods used
 - Sources for climate history
- Data on weather and climatic development for the last 700 years
- Types of datasets
 - Daily and partly even sub-daily weather observation and instrumental measurement
 - “Proxy data”, i.e. phenological observations (plants, snow), but also some tree-ring data etc.
 - 92 series, e.g. long series on temperature and precipitation, ice-breakups, grain prices, etc.
 - Information about damage caused by weather and climate including the impact on humans, animals and infrastructure
 - Natural hazards and their consequences

Working with the Euro-Climhist database

Topics:

Search

Location:

Search

Topics combination:

☐ AND
☒ OR

From (dd.mm.aaaa):

01.01.1700

To (dd.mm.aaaa):

01.01.1850

Period:

All

☐ Include daily weather observations

Submit

Topics:

- Descriptive data
 - Weather description
- Meteorological impacts
 - ☒ Storm impact
 - Hail impact
 - Thunderstorm impact
 - Storm surge, spring tide
 - Impact of floods and high water
 - Avalanche impacts
- Climatological impacts
- Natural hazards
- Atmospheric phenomena

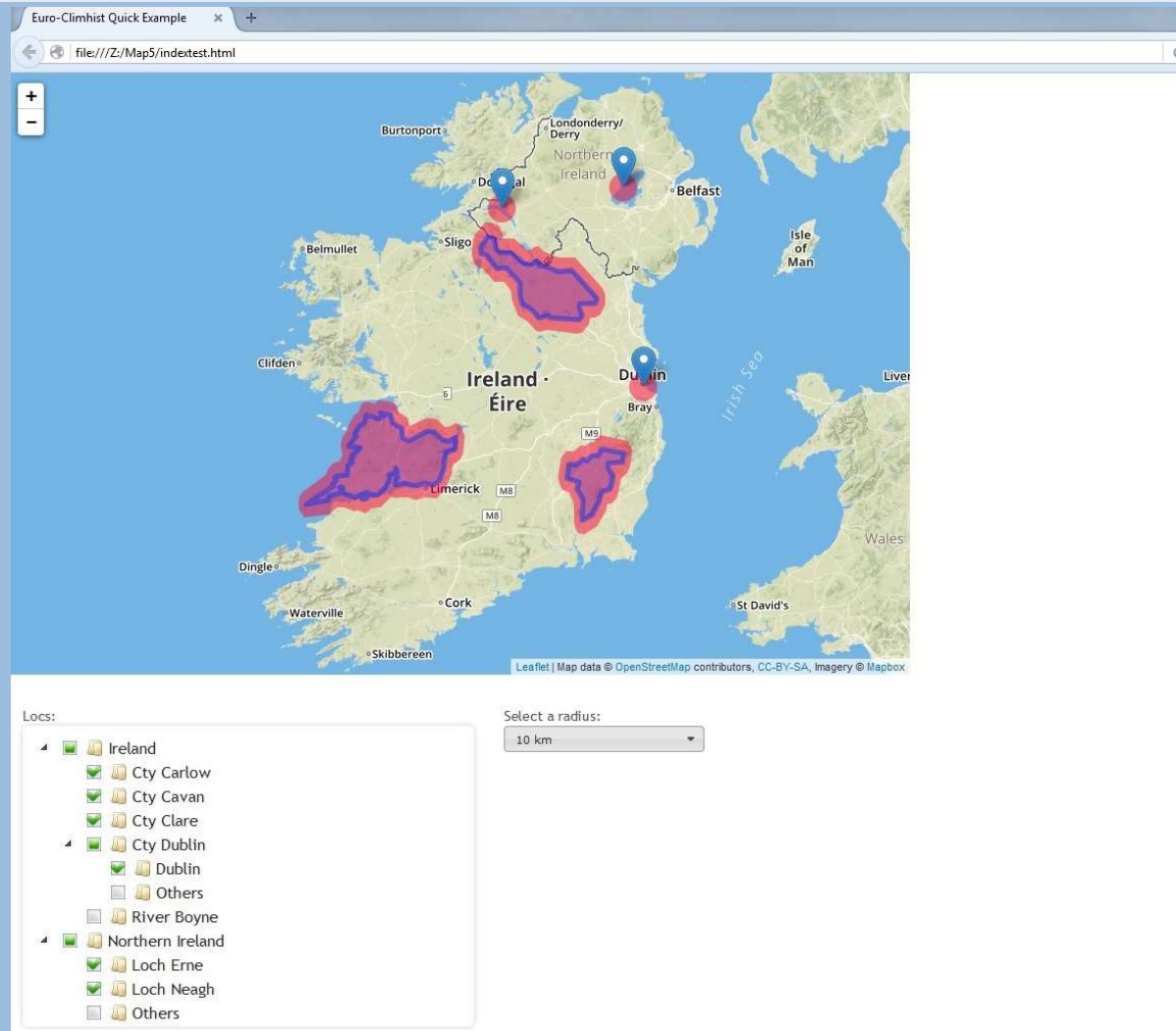
Location:

- Europe
- Austria
- Belgium
- Switzerland
 - ☒ Cantons
 - Ct. Aargau
 - Ct. Appenzell-Innerrhoden
 - Ct. Appenzell-Ausserrhoden
 - ☒ Ct. Bern
 - ☒ Ct. Basel-Country
 - ☒ Ct. Basel-Stadt
 - Ct. Fribourg

- Access as a standard user or scientific user
- Search engine available in four languages
 - English
 - French
 - German
 - Italian
- Search for single records or series
 - Spatial limitation
 - Specific timespan
 - Area request

Spatial visualisation of requests and results

Request according to political units and lakes

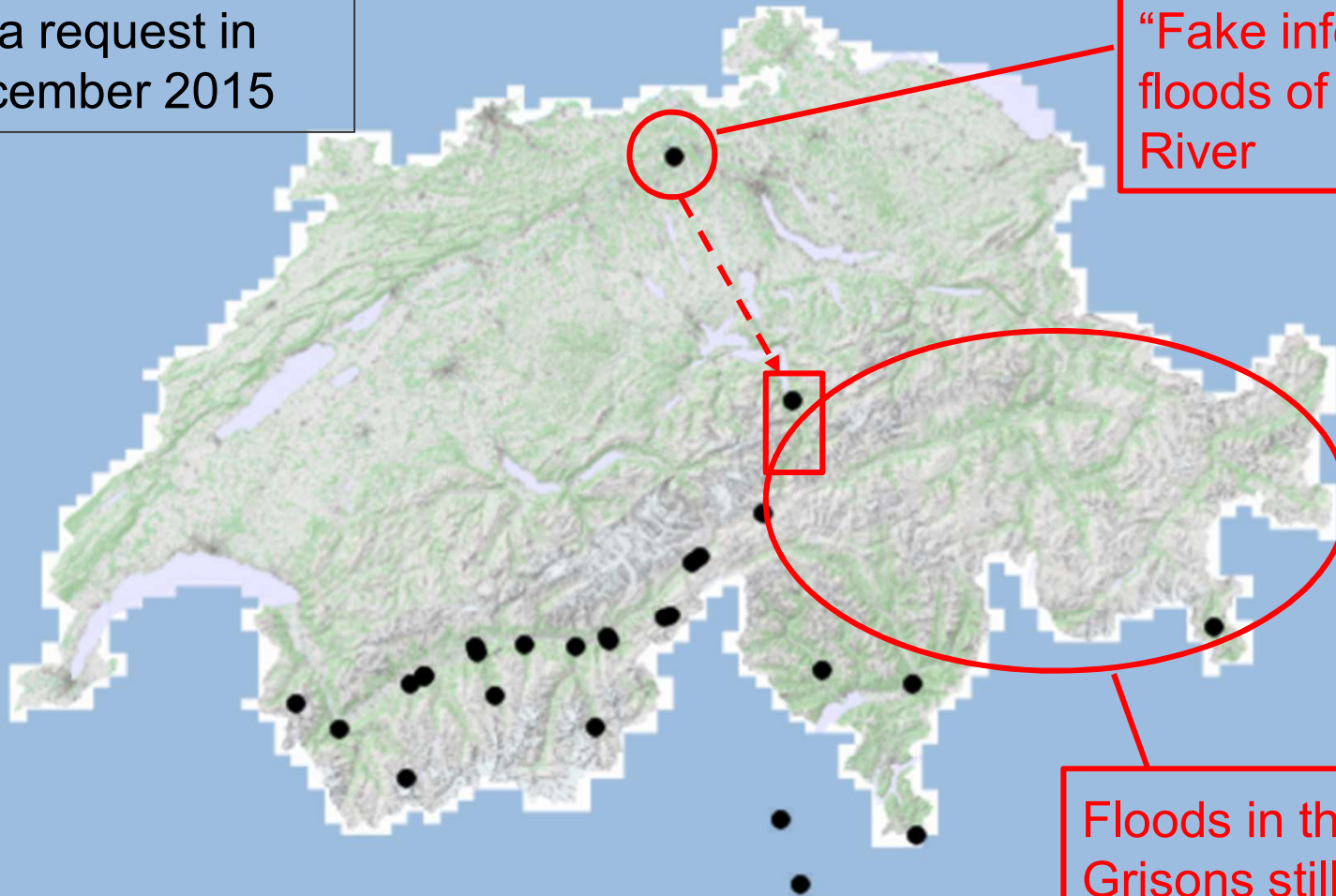


Data assessment by spatial visualisation

Floods in Switzerland, summer 1834

Data request in
December 2015

“Fake information” on
floods of the Reuss
River



Floods in the Canton of
Grisons still not inserted

Weather reports and climate data

The example of Switzerland, 1522-1523

Logout  Topics  Series  Account  Password  Help  DE FR IT EN

Search results

1522 All year impact of floods and high water / Eulach / S:Bosshart, Chronik

Disasters

1522 All year tree-ring width (mm): 0.72 mm: very small / Lötschental / S:Büntgen, Tree_Width_Lötschental

1522 All year tree-ring maximum density (g/cm3): 0.85 g/cm3: slight / Lötschental / S:Büntgen, Tree_MXD_Lötschental

1522 Jan 16 - 26 frost impact / Schaffhausen(SH)(403m) / S:Stockar, Chronik

1522 Apr very cold / Schaffhausen(SH)(403m) / S:Stockar, Chronik

1522 May very cold / Schaffhausen(SH)(403m) / S:Stockar, Chronik

1522 Jun very cold / Schaffhausen(SH)(403m) / S:Stockar, Chronik

Weather

1522 Summer hay production abundant / Schaffhausen(SH)(403m) / S:Stockar, Chronik

1522 Jun 25 - 30 fog, variable weather / Schaffhausen(SH)(403m) / S:Stockar, Chronik

Phenology

1522 Jul 28 grain harvest begins (d-of-Yr): 209 Day-of-Year: rye late / Swiss Plateau / S:Wetter_Pfister, Grain_harvest

1522 Oct 21 grape harvest begins (d-of-Yr): 294 Day-of-Year: late / Swiss Plateau / S:Wetter-Pfister, Grape_harvest

1523 All year tree-ring width (mm): 0.83 mm: small / Lötschental / S:Büntgen, Tree_Width_Lötschental

1523 All year tree-ring maximum density (g/cm3): 0.84 g/cm3: slight / Lötschental / S:Büntgen, Tree_MXD_Lötschental

Climate

Uff den abereilen und miagen und brachett regnett es vast und was kalt, das ich aim halben dag zu pfingsten ain belzrock must ainlegen das ich wott erfrorn sin von keltin, und warm mian die stuben, ettlich lütt. Was vast kalt.“

(Hans Stockars Jerusalemfahrt 1519 und Chronik 1520-1529, ed. Karl Schib. Basel 1949: 36)

Collective Flood Memory

A new type of disaster memory and disaster awareness

- Blogs on single floods, e.g. the 2005 flood in the Matte quarter in Bern
- The “Collective Flood Memory” project (online since 2018)
 - Developed by the “Mobiliar Lab” at the Oeschger Centre for Climate Change Research, University of Bern (PI Olivia Romppainen-Martius)
 - Sponsored by the Mobiliar property and real estate insurance
 - Pictures support research on historical and future floods

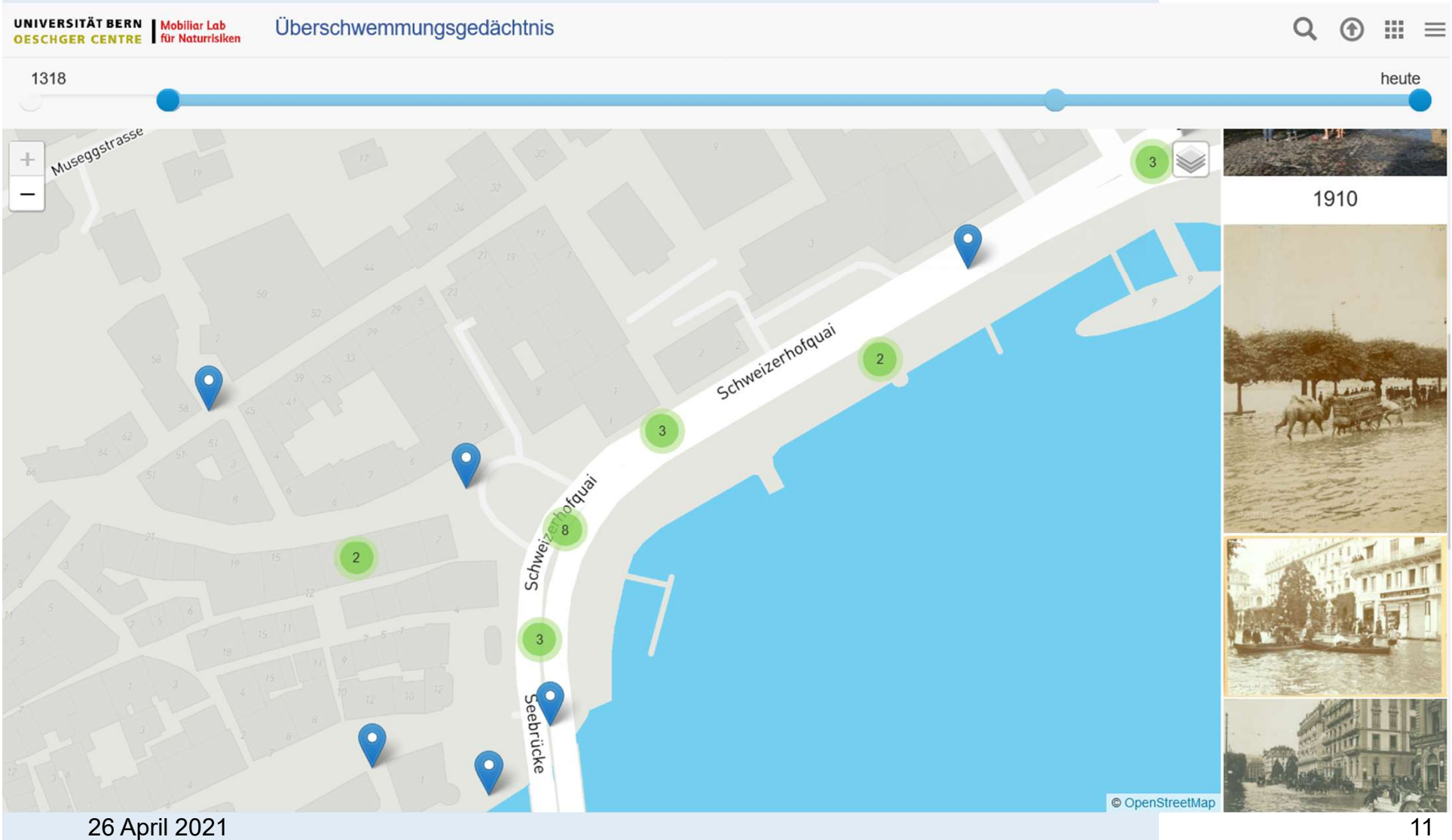
Collective Flood Memory

<https://www.ueberschwemmungsgedaechtnis.ch/de/home>

- Search options
 - Specific areas
 - Specific time span/event
- Call for active participation
 - Upload of own historical and current pictures
 - Assistance to locate uploaded pictures
- “Flood marks” of the 21st century?
 - Dimensions of floods become visible again
 - Bottom-up process shall enable more consciousness for a modern integrated flood prevention

Collective Flood Memory

Search for floods in Lucerne, 1910 to present



Potentials of citizen science in climate and disaster research

- Large number of photographs and other sources for climate and disaster research still in private collections
- Active participation via
 - Newspaper calls
 - School projects
- Flood awareness spread into a wider public
- Helpful initiative to reduce conflicts over flood prevention?

Thank you for your attention!

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